DOCUMENT RESUME

ED 329 256 IR 052 811

AUTHOR Xanco, Mary Lee C.; Quinlivan, Kathleen
TITLE Physical Condition of the Collections at E. H. Butler Library, State University College at Buffalo: Report of a Survey.
PUB DATE 26 Sep 88
NOTE 28p.; Paper presented at the Western New York/Ontario Chapter of the Association of College and Research Libraries (ACRL) Workshop (Buffalo, NY, September 26, 1988). For the complete proceedings, see IR 052 805. For other papers of this workshop, see IR 052 806-813.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Libraries; Comparative Analysis; Higher Education; Hypothesis Testing; *Library Collections; Library Surveys; Preservation; Questionnaires; Research Libraries; *Research Methodology; Tables (Data)
IDENTIFIERS *Book Preservation

ABSTRACT

A survey of the collections of the libraries at the State University College at Buffalo (New York) was conducted to determine the physical condition of books and bound periodicals. The methodology of prior surveys at Yale (Connecticut) and Syracuse (New York) Universities was used and the following hypotheses were tested: (1) the methodology used at Yale and Syracuse will work equally well at a smaller institution; (2) the library collection at Buffalo is younger than those of the research libraries; (3) there is more acidic damage to books in the research libraries than at Buffalo; (4) there are more brittle books in the research libraries than at Buffalo; (5) there is more mutilation at Buffalo than in the research libraries; and (6) books which have circulated are more likely to need attention than those which have not circulated. Percentages of brittle, acidic, and damaged books were found to be generally comparable to those reported at Yale and Syracuse. Bound periodicals, classifications C-K, and storage showed the highest degree of damage. The survey validated the usefulness of this methodology for gathering data about physical condition in order to plan preservation activities. Data are displayed in tables throughout the paper. A table showing the breakdown of the collection sample by location on campus and number of books, a copy of the questionnaire, instructions to surveyors, and comparisons of selected collection characteristics among Buffalo, Syracuse, and Yale are appended. (4 references) (Author/MES)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED329256

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PHYSICAL CONDITION OF THE COLLECTIONS

AT E.H. BUTLER LIBRARY, STATE UNIVERSITY COLLEGE AT BUFFALO:

REPORT OF A SURVEY

Mary Lee C. Xanco, Collection Development Officer,
E.H. Butler Library, State University College at Buffalo

Kathleen Quinlivan, Assistant Librarian,
Reference and Collection Development Department,
Lockwood Memorial Library,
State University of New York at Buffalo

Spring 1988

IR053811

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Mary Lee C. Xanco
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACT

A survey of the collection at State University College at Buffalo was taken in order to determine preservation needs, to compare the physical condition of a college library collection with that of two research libraries, and to ascertain whether particular areas of the collection needed more work than others. The survey followed the methodology of the 1982 Yale survey and the 1985 survey at Syracuse University. Data were further analyzed using SPSSX. Percentages of brittle, acidic, and damaged books were found to be generally comparable to those reported at Yale and Syracuse. Bound periodicals, classifications C-K, and storage showed the highest degree of damage. The survey helped to validate the usefulness of this methodology for gathering data about physical condition in order to plan preservation activities. It showed that a college library can have most of the same needs for preservation that research libraries do.

INTRODUCTION

The physical condition of a random sample of 2,330 volumes in the E.H. Butler Library at State University College at Buffalo (SUCB) was surveyed in summer 1987 in order to gather information for planning preservation activities, to compare the amount of deterioriation in a college library to that found in two research libraries, and to ascertain whether certain areas of the collection needed more work than others. The age of the collection and the amount of circulation were also studied. The incidence of mutilation/vandalism were of particular interest to the library, since staff had been engaged in an anti-mutilation campaign at the time of the survey.

The survey followed the design that was developed in the 1982 Yale survey (1) and the 1985 survey at Syracuse University (2). These recent studies, as well as the one at Stanford (3), have established viable methods for carrying out such a survey. They have gathered valuable information about the physical condition of research library collections. No previous surveys have been reported in college libraries.

The following report reviews the earlier studies, poses several hypotheses, describes the design of the study at Buffalo, and reviews the results and conclusions.

The library at State University College at Buffalo is referred to as "Buffalo" or "Butler Library."

RESEARCH LIBRARY SURVEYS

The survey at Stanford University Libraries in 1979 was one of the first attempts to establish with some precision the amount of deterioriation in a library collection. During the 1970's, increasing concern had been developing over the presence of large percentages of embrittled books in U.S. research libraries and the consequent threat to the preservation of our cultural heritage. Estimates were made of the numbers of affected books at the Library of Congress and at major research libraries, but exact numbers were not known. The Stanford survey aimed not only to determine the quantity of deteriorated books in the collection, but also to show that "such a survey could be conducted with economy of time and money." (4)

A random sample of 400 books was developed for the Green Library, which housed the majority of Stanford's humanities

collections. Books were examined for deterioriation of paper, binding, and board and cover. Each category was rated good, moderate or poor. (5) The overall percentage of deterioration was found to be 26.5%. (6) The survey was carried out in 195 hours at a moderate cost. (7)

The Yale survey, supported by grants from the National Endowment for the Humanities and the Andrew W. Mellon Foundation, was the first large-scale preservation survey in a research library. At Yale, a stratified random sample of 36,500 volumes in fifteen of the sixteen major libraries was examined over a two and a half year period. (8). Yale librarians wanted to determine not only the number of deteriorated books but also specific reasons for deterioration. They examined fifteen factors, such as primary protection condition, text condition, brittleness, and so forth, and performed intersections of combinations of factors. (9) The study established that 12.8% of the volumes sampled needed treatment, 37.1% had brittle paper and that 82.6% were acidic. (10) A quantity of additional data was gathered which helped to define the nature of deterioriation at Yale and assisted them in developing preservation programs.

The Syracuse survey was closely modeled after Yale's in terms of both objectives and procedures. A stratified random sample of 2,548 out of a total of 1,181,555 in four libraries was examined for thirteen factors. (11) Some of the categories were subdivided, e.g., environmental damage was checked for fading, mold, insects, and so forth. (12) Intersections were performed on combinations of factors. As in the Yale study, information was gathered on the age of the collection and the country of publication. The study found that 25% of the collection needed repair, 88% of the materials were acidic, and 13% had highly brittle paper. (13)

CONCEPTS UNDERLYING THE BUFFALO STUDY

The Buffalo study was based on the supposition that, despite basic differences in the nature of the collections there is a need for preservation work in smaller collections as well as in research libraries. Like the Yale and Syracuse surveys, the Buffalo study sought to determine the quantitative extent of damage and also the reasons for the damage.

Hypotheses:

The following hypotheses were tested at Buffalo:

1. The methodology used at Yale and Syracuse will work equally well at a smaller institution.

2. The library collection at Buffalo is younger than those of the research libraries.

3. There is more acidity in the research libraries than at Buffalo.

4. There is more brittleness in the research libraries than at Buffalo.

5. There is more mutilation at Buffalo than in the research libraries.

6. Books which have circulated are more likely to need attention than those which have not circulated.

Assumptions:

These hypotheses were based on several assumptions. First, there seemed no reason why the sampling method should not work equally well in a collection of 500,000 as in collections of over a million volumes. Other assumptions had to do with the nature of the collections and of the users at the different institutions. A college collection is closely related to curriculum needs; a research collection is based not only upon curriculum but upon the needs of a scholarly community over an indefinite time period. In order to keep up-to-date with the curriculum, the college library can be presumed to acquire current rather than retrospective materials and to weed its holdings periodically, whereas the research library will acquire older materials along with the new and will retain older items over a longer period of time. Thus, the college library collection can be expected to be younger and may exhibit less acidity and brittleness than the research library. A college library's clientele are predominantly undergraduates, who might be suspected of misusing materials more often than the users of a research library; therefore, there may be more mutilation at Buffalo than at the other libraries. Finally, if deteriora- tion comes from handling, those volumes which have circulated can be expected to show the most damage.

DESIGN OF THE SURVEY

Pilot Study:

A pilot study was done in March 1987 of a random sample of 285 volumes in the H, N, PR, PS, and T classifications and

bound periodicals, 1976-1986. A questionnaire of nine items was used to gather information on the amount and causes of deterioration. Among other results, it was found that 5% of the volumes examined needed immediate attention and 13% showed underlining, pages missing, and other forms of mutilation.

After the pilot study, the method of establishing the random sample was changed and modifications were made to the questionnaire.

Full Study:

Sample: Both the monograph and bound periodical collections in Butler Library were examined using a stratified random sampling technique. Following a formula outlined by Drott (14), and modified by Syracuse (15), it was determined that a total sample size of approximately 2,200 volumes would be appropriate. Because it was difficult to predict hit rates, the surveyors found that the actual samples for each stratum varied from the ones which were originally calculated. The final sample was 2,333 volumes out of a total collection of 502,540 bound volumes. A table of the planned and eventual sample sizes can be found in Appendix 1.

Eleven strata were established prior to the start of the survey, corresponding to specific quadrants; i.e., stack areas, or other locations within the library, such as the Curriculum Lab, the Creative Studies collection, and so forth.

E.H. Butler Library houses all of its resources in one building. All of the collections were surveyed except microforms, non-print materials, archives and a small collection of rare and valuable books. For lack of time, it was decided not to re-survey the areas covered in the pilot study.

Random numbers: Lotus 1-2-3 was utilized to generate sets of random numbers for each stratum.

Each random number consisted of the following elements:

Stratum (2 digits)
Range (3 digits)
Section (2 digits)
Shelf (1 digit)
Volume (2 digits)

As part of the preliminary survey work, the Butler Library collection was carefully mapped and labelled to indicate range and section numbers. This data was used during the production of the random numbers.

Staff: The survey group initially consisted of four individuals, but was later reduced to three: a librarian, a library school intern, and a student assistant. The actual survey work was carried out over a four week period during June and July, 1987.

Questionnaire: The questionnaire closely followed those developed at Yale and Syracuse, with modifications to meet local objectives. For example, at Buffalo there was no effort to note country of publication, whereas Yale and Syracuse recorded this variable. Further, given the Library's interest in mutilation, three categories of misuse were included. The following categories were examined: (See Appendix 2 for a copy of the questionnaire.)

1. Call Number (first 2 letters only)
2. Publication Date (year)
3. Random Number
4. Surveyor Identification Number
5. Tagged?
6. Checked Out?
7. Primary Protection Type
8. Boards/covers need repair?
9. Spine needs repair?
10. Hinges need repair?
11. Back needs repair?
12. Leaves detached?
13. Fold Test (brittleness)
14. Gutter width
15. pH Test (acidity)
16. Text damaged?
17. Pages removed?
18. Underlining or other writing?
19. Other mutilation? (scotch tape, food/drink stains)
20. Environmental damage?
21. Immediate attention needed?

The survey group used machine readable answer sheets to simplify the process of recording answers and facilitate subsequent data analysis. Initially, cardboard overlays were used to isolate particular areas for recording the answers; they eventually proved rather cumbersome and were abandoned.

Data Analysis: Optical scanning by the SUCB Computer Services produced both a frequency distribution of results and an online data file which was manipulated with SPSSX to provide further analyses. These included frequency and percentage tables for each of the survey questions arranged by year of publication (decade), call number, and stratum, as

well as a number of cross-tabulations between two different variables.

RESULTS

Percentages of responses to each question, arranged by stratum, are shown in Table 1. Arrangement by stratum allows the library to judge the work that is needed in each area. Reference shows the least amount of damage overall. Bound periodicals, the C-K quadrant, and Basement Storage all have relatively high degrees of various kinds of damage.

Other significant findings were as follows:

Circulation: Survey results showed that slightly less than one-half of the total sample had circulated; however, it is important to note that several strata contained non-circulating materials, e.g. Reference, Curriculum Lab, Storage, etc. A table of circulation by class number was produced.

Volumes Needing Immediate Attention: The number of volumes in need of repair constituted only 9 % of the total sample, or 206 volumes. When extrapolated to the entire collection size of approximately 500,000 volumes however, 45,000 volumes require immediate attention. Volumes needing attention were defined in the survey as those with broken bindings, missing or damaged text, broken leaf attachments, or a combination of these factors. Therefore it seems reasonable to assume that if other factors were taken into consideration, such as damaged covers, hinges, mutilation and environmental damage, the number of volumes in the collection currently needing attention would be significantly higher.

The largest percentages of damage are to boards, covers and spines, a finding which may support the contention for greater emphasis on the importance of correct book handling by both library staff and users.

Environmental Damage: Types of environmental damage considered in the survey were fading, mold, water stains, yellowing, insect/pest damage and burns.

Survey results indicate that 47 % of the sample volumes showed this type of damage. Although our results do not specify the incidence of specific environmental problems,

TABLE 1: RESULTS (%)

Stratum	Reference	Curriculum Lab	2NE Bd. Per. 1940-1975	2SE C-K	2NW A-B	3NE O-QR	3SE N-P	3SW L-M	3NW R-Z	Creative Studies	Basement Storage
Total Holdings	30,000	14,010	95,490	110,610	37,560	51,960	52,620	43,710	45,210	2,670	18,700
Sample Size	88	56	319	495	164	322	266	213	228	50	124
Maximum Standard Error (%)	5.0	6.6	2.8	2.2	3.9	2.8	3.1	3.4	2.6	7.1	4.5
1. Tagged?											
1. Yes	5.7	0.0	.3	.2	.6	2.2	3.8	4.7	.4	18.0	.8
2. No	94.3	100.0	99.7	99.8	99.4	97.8	96.2	95.3	99.6	82.0	99.2
2. Ever circulated?											
1. Yes	2.3	57.1	.9	65.6	75.6	62.1	50.0	72.8	73.7	4.0	1.6
2. No	97.7	42.9	99.1	34.4	24.4	37.9	50.0	27.2	26.3	96.0	98.4
3. Primary protection											
1. Hardcover	68.2	76.8	98.1	85.9	90.2	85.1	83.5	66.2	78.5	52.0	97.6
2. Paper	20.5	21.4	0.0	9.5	7.9	9.6	10.5	22.5	16.2	38.0	.8
3. Stiffened	0.0	0.0	0.0	0.0	0.0	.4	.4	0.0	.4	0.0	0.0
4. Pamphlet	1.1	1.8	1.6	4.4	1.2	4.3	5.6	9.9	3.9	2.0	1.6
5. Box/ Portfolio	8.0	0.0	.3	.2	.6	.6	0.0	1.4	.9	8.0	0.0
6. Other	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stratum	Reference	Curriculum Lab	2NE Bd. Per. 1940-1975	2SE C-K	2NW A-B	3NE O-QR	3SE N-P	3SW L-M	3NW R-Z	Creative Studies	Basement Storage
4. Boards/cover need repair?											
1. Yes	3.4	25.0	.9	11.3	22.6	19.3	18.8	19.7	4.4	14.0	5.6
2. No	96.6	75.0	99.1	88.7	77.4	80.7	81.2	80.3	95.6	86.0	94.4
5. Spine needs repair?											
1. Yes	5.7	1.8	.6	11.9	21.3	17.7	12.8	20.2	3.9	20.0	12.9
2. No	94.3	98.2	99.4	88.1	78.7	82.3	87.2	79.8	96.1	80.0	87.1
6. Hinges need repair?											
1. Yes	2.3	1.8	.9	10.1	12.8	1.2	1.9	8.0	1.3	2.0	12.1
2. No	80.7	98.2	98.4	80.0	78.0	87.6	87.2	60.6	86.0	54.0	86.3
3. NA	17.0	0.0	.6	9.9	9.1	11.2	10.9	31.5	12.7	44.0	1.6
7. Back needs repair?											
1. Yes	0.0	0.0	0.0	2.4	.6	1.2	.7	3.3	.4	0.0	4.0
2. No	84.1	100.0	99.4	87.1	89.0	84.8	86.1	64.8	86.4	56.0	94.4
3. NA	15.9	0.0	.6	10.5	10.4	14.0	13.2	31.9	13.2	44.0	1.6
8. Leaf detached?											
1. Yes	4.5	7.1	3.4	7.9	6.1	6.5	6.8	8.0	5.7	6.0	14.5
2. No	95.5	92.9	96.6	91.9	93.9	93.5	93.2	92.0	94.3	94.0	85.5

Stratum	Reference	Curriculum Lab	2NE Bd. Per. 1940-1975	2SE C-K	2NW A-B	3NE Q-QR	3SE N-P	3SW L-M	3NW R-Z	Creative Studies	Basement Storage
9. Fold test											
1. Breaks after 2 folds	1.1	5.4	5.7	6.5	0.0	2.8	10.2	1.9	.9	0.0	37.1
2. Breaks after 4 folds	0.0	7.1	6.9	4.8	6.7	2.5	6.0	6.6	.9	0.0	9.7
3. Does not break	98.9	87.5	87.4	88.7	93.3	94.7	83.8	91.5	98.2	100.0	53.2
10. Gutter width											
1. Less than 1 cm	23.8	7.1	55.5	22.1	20.7	7.5	21.1	17.4	26.0	14.0	11.3
2. More than 1 cm	76.3	92.9	44.5	77.9	79.3	92.5	78.9	82.6	73.6	86.0	88.7
11. pH test											
1. Yellow (acidic)	46.2	0.0	52.4	47.5	51.8	45.3	69.9	44.6	44.7	34.0	63.7
2. Green	25.6	100.0	33.4	33.1	38.3	32.9	15.4	42.7	27.6	44.0	14.5
3. Blue (acid free)	28.2	0.0	14.2	19.3	9.9	21.7	14.7	12.7	27.6	22.0	21.8
12. Text damage?											
1. Yes	0.0	8.9	7.2	2.4	.6	.9	2.3	1.4	1.8	0.0	8.9
2. No	100.0	91.1	92.8	97.6	99.4	99.1	97.7	98.6	98.2	100.0	91.1
13. Mutilation: pages removed											
1. Yes	0.0	1.8	3.4	1.4	0.0	.6	1.9	0.0	.4	0.0	0.0
2. No	100.0	98.2	96.6	98.6	100.0	99.4	98.1	100.0	99.6	100.0	100.0

Stratum	Reference	Curriculum Lab	2NE Bd. Per. 1940-1975	2SE C-K	2NW A-B	3NE O-QR	3SE N-P	3SW L-M	3NW R-Z	Creative Studies	Basement Storage
14. Mutilation: writing											
1. Yes	6.8	14.3	16.9	30.3	35.4	23.3	30.5	32.9	21.9	14.0	16.1
2. No	93.2	85.7	83.1	69.7	64.6	76.7	69.5	67.1	78.1	86.0	83.9
15. Mutilation: other											
1. Yes	1.1	5.4	11.6	20.6	9.1	22.4	25.2	16.4	11.4	14.0	29.8
2. No	98.9	94.6	88.4	79.4	90.9	77.6	74.8	83.6	88.6	86.0	70.2
16. Environmental damage											
1. Yes	6.8	28.6	42.9	62.6	51.8	47.8	69.9	41.3	8.3	16.0	73.4
2. No	93.2	71.4	57.1	37.4	48.2	52.2	30.1	58.7	91.7	84.0	26.6
17. Immediate attention needed?											
1. Yes	5.7	5.4	1.0	12.9	11.7	7.1	6.4	16.0	8.9	8.0	11.2
2. No	94.3	94.6	99.0	87.1	88.3	92.9	93.6	84.0	91.1	92.0	88.8

survey group members indicated that yellowing and fading were the most frequent choices in response to this question.

It seems somewhat surprising that nearly one-half of the volumes in a fairly recent collection which is housed in a modern building show evidence of environmental damage. This finding seems to indicate the need for a thorough assessment of environmental conditions in Butler Library, and perhaps for adjustments in current temperature, humidity and lighting levels within the library building.

Results related to the hypotheses follow.

Hypothesis 1: The methodology used at Yale and Syracuse will work equally well at a smaller institution.

The methodology was applied satisfactorily at Buffalo. A comparison of the results found at Buffalo, Syracuse, and Yale can be found in Appendix 4. Results at Buffalo are more often comparable to those at Syracuse, partly because the Buffalo questionnaire more closely resembled the one at Syracuse. Buffalo and the Yale Cross-Campus, or undergraduate library, frequently show similarities.

Hypothesis 2: The library collection at Buffalo is younger than those of the research libraries.

In general, the Butler Library collection is comparatively recent, with nearly 75 % of the collection falling into the 1960 to 1987 period. Syracuse had 63 % published after 1960. Two percent of Butler Library's collection, but 7% of Syracuse's was published before 1900. The figures for Yale were not available. The hypothesis of a younger collection is supported.

Hypothesis 3: There is more acidity in the research libraries than at Buffalo.

Results at Buffalo show that the sample was highly acidic. Approximately 51 % of the books sampled were very acidic, 30 % were slightly acidic, and only 18.5 % tested acid-free. Since the total of 81% acidity at Buffalo was comparable both to Syracuse (88%) and Yale/overall (83%), the hypothesis is not supported. Yale/undergraduate showed significantly less acidity, 68%.

Assumptions about the association of acidity and age proved to be inexact when acidity was intersected with publication date. Older volumes did contain higher percentages of acidic

paper; e.g., 100 % of volumes published during the nineteenth century contained very acidic paper. However, fairly recent volumes also exhibited rather high levels of acidic paper as outlined below:

Decade of Publication	% of sample volumes with very acidic paper
1950	72
1960	53
1970	35
1980	22

Hypothesis 4: there is more brittleness in the research libraries than at Buffalo.

The fold test conducted on the sample yielded the following results: only 6 % of the sample volumes tested as extremely brittle, while 5 % were somewhat brittle; 89 % of the books passed the 4-fold test. The combined degree of brittleness, 11%, at Buffalo was comparable to Syracuse (10%) and to the Yale/undergrate collection (8%). Yale/overall had considerably more brittleness, 37%.

The hypothesis is supported only to the extent that the overall figure for brittleness at Yale is higher. This is not surprising considering the association of brittleness with age, as the Yale collection dates back to 1701, while at Buffalo, fewer than 10 % of the volumes surveyed have publication dates prior to 1940. As pointed out in the Syracuse study however, "a correlation of acidic paper is eventual embrittlement" (16) which may indicate that brittleness will become more of a problem in the future at Buffalo.

Hypothesis 5: There is more mutilation at Buffalo than in the research libraries.

In terms of pages removed (either razored or torn out), damage seems quite minimal since only one percent of the volumes surveyed showed any evidence of this problem. However other forms of user damage constitute a much more serious problem. Approximately 25 % of the sample volumes contained underlining or other writing, and 17 % exhibited various other forms of mutilation such as scotch tape, fingerprints, and food or drink stains.

The degree of writing was twice as high as at Syracuse. Yale did not keep separate figures on kinds of mutilation. The total amount of mutilation was comparable to Syracuse and to Yale/undergraduate: Buffalo, 42%; Syracuse, 42%;

Yale/undergrad, 39%.

Except in terms of writing in the books, then, the hypothesis is not supported. However, the Buffalo and Yale/undergraduate figures tend to suggest that undergraduates may indeed be more inclined to misuse materials.

Hypothesis 6. Books which have circulated are more likely to need attention than those which have not circulated.

A cross-tabulation of circulation with need for attention showed that 13% of the books which had circulated and 5% of those which had not circulated needed attention. Otherwise stated, 72.8% of those that needed attention had circulated. A chi-square test of independence was done to test the null hypothesis that there is no significant difference between whether a book has circulated and whether it needs attention. Hypothesis 6 is an alternate. A chi-square of 111.46 with 1 degree of freedom was found to be significant at the .05 level. Thus, the null hypothesis is rejected and hypothesis 6 is supported. At Syracuse, where circulation within the past five years was recorded, the opposite was true. It may be that including all circultion is a better measure of this relationship, or that the inclusion of older books will bring out a more frequent association of circulation with need for repair.

SUMMARY AND CONCLUSIONS:

The Butler Library survey of physical condiditon of the collection, patterned after the Yale and Syracuse surveys, accomplished its objectives.

The results have provided the library with important information concerning the present condition of monograph and periodical collections in Butler Library. The survey has also yielded valuable data in a number of other areas related to preservation, including levels of acidity and brittleness and the extent of damage to library materials caused by both users and environmental factors.

Data concerning the physical condition of book covers, spines, hinges and bindings will enable library personnel to determine the most appropriate type and level of repair work which can be successfully accomplished utilizing in-house facilities and staff.

A college library collection can have virtually the same degree of acid paper and embrittled books as a research

library. A number of other findings are similar among all three libraries. Thus, while in the college libraries we often hear that preservation is a problem only for the research libraries, many of the findings in this study suggest that a college library can have as much reason to be concerned over the life of its collection and the need for preservation as do the larger libraries.

Among additional findings, information was gathered about the age and circulation of the collection. The age of the collection was established. An indication of the overall amount of circulation was gleaned.

The completeness of the study was limited by our decision to omit the target areas of the pilot study from the final study.

The online data file has been most useful in producing various reports of interest to preservation and to collection development. Statistics may be analyzed further to provide more detailed information on other issues currently facing Butler Library.

It would be desirable for other college libraries to report results of surveys of physical condition to see what results have been obtained from additional comparisons of preservation needs in college libraries and research libraries.

REFERENCES

1. Gay Walker et al., "The Yale Survey: a Large-Scale Study of Book Deterioration in the Yale University Library," College & Research Libraries 46, no. 2 (March 1985): 111-132.

2. Randall Bond et al., "Preservation Study at the Syracuse University Libraries," College & Research Libraries 48 no. 2 (March 1987): 132-147.

3. Sarah Buchanan and Sandra Coleman, "Deterioration Survey of the Stanford University Libraries Green Library Stack Collection," in Preservation Planning Program Resource Notebook, comp. Pamela W. Darling (Washington: Association of Research Libraries, Office of Management Studies, 1982), pp. 159-189.

4. Buchanan, 162.

5. Buchanan, 165.

6. Buchanan, 182.

7. Buchanan, 178.

8. Walker et al., 112.

9. Walker et al., 113.

10. Walker et al., 111.

11. Bond et al., 132-133.

12. Bond et al., 133.

13. Bond et al., 132.

14. M. Carl Drott, "Random Sampling: a Tool for Library Research," College and Research Libraries (March 1969): 124.

15. Bond et al., 144.

16. Bond et al., 138.

APPENDIX 1: SAMPLE SIZE

Stratum	Volumes	Projected Sample*	Actual Sample
1. Reference	30,000	130	88
2. Curriculum Lab	14,010	61	56
3. Quad 2NE	95,490	415	319
4. " 2SE	110,610	418	495
5. " 2NW	37,560	163	164
6. " 3NE	51,960	226	322
7. " 3SE	52,650	229	266
8. " 3SW	43,710	190	213
9. " 3NW	45,210	197	228
10. Creative Studies	2,670	30	50
11. Basement Storage	18,700	81	124
Totals	502,540	2,203	2,333

*Based on Drott and Syracuse formulas with confidence level of 59% and tolerance of ± 1%

APPENDIX 2: QUESTIONNAIRE

1. Tagged? (Every 30th book after a book located by random number is "tagged")
   1. Yes_____
   2. No _____

2. Has book ever been checked out?
   1. Yes_____
   2. No _____

3. Primary protection (boards/cover type):
   1. Hardcover (rigid boards or limp leather covers) _____
   2. Paper _____
   3. Stiffened (i.e., reinforced paperbacks) _____
   4. Pamphlet _____
   5. Box/Portfolio _____
   6. Other (ring binder, spiral, etc.) _____

4. Boards/cover need repair? (Answer yes if the external covering is torn, the edges are ripped or the cover is damaged in any other way.)
   1. Yes_____
   2. No _____

5. Spine needs repair? (Back portion of the book that faces out when the book is standing on the shelf. Answer yes only if spine is torn, split or separated from the rest of the book.)
   1. Yes_____
   2. No _____

6. Hinges need repair? (Area inside the cover that connects the inside of the cover to the text block of the book. Answer yes only if the hinges are torn, split or broken.)
   1. Yes_____
   2. No _____
   3. NA _____

7. Back needs repair: (Portion underneath spine of book that holds the text block together. Answer yes only if the back is torn or split.)
   1. Yes _____
   2. No _____
   3. NA _____

8. Leaf detached? (Answer yes if any pages are separated from the binding of the book.)
   1. Yes _____
   2. No _____

9. Fold test (Choose page near the middle of the book; fold corner four times, and pinch crease on each fold. Then tug corner gently.)
   1. Paper breaks after 2 folds _____
   2. Paper breaks after 4 folds _____
   3. Does not break _____

10. Gutter width: (record narrowest visible margin).
   1. Less than 1 cm _____
   2. 1 cm or greater _____

11. pH test (acidity of paper)
   1. Yellow (acidic)
   2. Green (slightly acidic)
   3. Blue (acid-free)

12. Text damaged? (Answer yes if any of the following conditions are evident: tears into text?, pages entirely detached?, pages missing?, and/or parts of pages missing? N.B., Do not include torn blank leaves as not intact.)
   1. Yes _____
   2. No _____

13. Mutilation: pages removed (razored or torn out).
   1. Yes _____
   2. No _____

14. Mutilation: underlining or other writing.
   1. Yes _____
   2. No _____

15. Mutilation: other (scotch tape, food or drink stains, etc.)
   1. Yes _____
   2. No _____

16. Environmental damage: (includes fading, mold, water stains, yellowing, insect/pest damage, and burns)
   1. Yes _____
   2. No _____

17. Immediate attention needed? (Answer yes only if one or more of the following conditions are evident: (a) broken bindings, (b) missing or damaged text, (c) broken leaf attachments, i.e., thread, staples, glue).

   1. Yes
   2. No

APPENDIX 3: INSTRUCTIONS TO SURVEYORS

Gather the following materials

1. clipboard
2. supply of answer sheets
3. answer sheet overlay
4. floor plan of your area
5. random number printout
6. pH testing pen
7. centimeter measure
8. number 2 pencils

Finding a book to evaluate

Use the random number sheets and your floor plan. Stratum is the same for all numbers in your area; you can ignore it. Find range with the help of the floor plan. Count sections of a range from left to right. Count shelves in a section from top to bottom, starting with the first occupied shelf at the top. Count books from left to right.

Tagging: After evaluating a book that you have found with a random number, count to the thirtieth book to the right and evaluate it.

If you cannot use a random number, mark "0" to the right of it and go on to the next number. Mark a check next to a random number that you use.

Filling out the form (one form for each book)

LC — Fill in the first two letters of the call number.

PUB. DATE — Fill in the year of the publication from the title page or elsewhere.

RANDOM NO. — Fill in the random number.

SURVEYOR ID — Use your code number:
1. Mary Lee
2. Kathleen
3. Elizabeth
4. Sue

ANSWERS — Darken the circle that corresponds to the correct answer from the questionnaires.

APPENDIX 4: COMPARISONS OF SELECTED COLLECTION CHARACTERISTICS

Characteristics	Buffalo	Syracuse	Yale Cross Campus	Overall
1. pH (Acidity):				
Very Acidic-Yellow	51%	63%		
82% / 88%			68%	83%
Acidic-Green	31%	25%		
Non-Acidic (Blue)	18%	12%	30%	14%
2. Brittleness (Fold Test):[1]				
Paper breaks at 2-4 folds	11%	10%	8%	37%
No break	89%	78%[2]	91%	59%
3. Primary Protection:				
Hardcover	84%	81%[3]	95%	76%
Paper	11%	5%	.1%	10%
Stiffened	0%	5%	—	—
Pamphlet	4%	4%	—	11%[4]
Box/Portfolio	0%	.5%	—	—
Other	1%	—	—	—
4. Boards/Covers need repair:	13%	13%	6%	8%[5]
5. Spine needs repair:	12%	13%	NA	NA
6. Hinges need repair:	5%	13%	NA	NA
7. Leaves need repair:	7%	3%	2%	4%
8. Back/binding needs repair:	1%	6%	NA	NA
9. Text damaged:	3%	8%[6]	1%	2%
10. Gutter margin width;				
1 cm. or more	77%	NA[7]	85%	75%
Less than 1 cm.	23%	NA[7]	15%	22%
11. Environmental damage:	47%[8]	43%[8]	1%	4%

Characteristics	Buffalo	Syracuse	Yale Cross Campus	Yale Overall
12. Mutilation: pages razored or torn out:	1%	1%	—	—
13. Mutilation: writing/underlining:	25%	12%	25%[9]	4%[9]
14. Mutilation: other, incl. food or drink stains, scotch tape, etc.	17%	4%	—	—
15. Immediate attention needed:	9%	25%	14%	13%

Notes:

[1]Results are not surprising considering that the Yale collection (overall) is older than the other libraries.

[2]Passed 15 folds

[3]Incl. leather, cloth and boards.

[4]Yale - "acidic pamphlet binders"

[5]Yale: "Primary protection condition not intact".

[6]Syracuse figure incl. volumes with only evidence of torn pages.

[7]Syracuse survey did not record data on gutter width.

[8]This is due in large part to yellowing and fading.

[9]Yale figures for mutilation incl. leaves cut out, underlining, scotch tape, food stains, etc.